WEST Search History

Hide Items | Restore | Clear | Cancel

DATE: Saturday, March 31, 2007

Hide?	Set Name	Query	Hit Count
		DB=PGPB,USPT,USOC,EPAB,JPAB,DWPI; THES=ASSIGNEE; PLUR=YES; OP=ADJ	
☐	L4	L2 and separat$3 near4 carbon dioxide	5
☐	L3	L2 and separat$3 near4 carbon dioxide near4 (synthesis gas or syngas)	0
☐	L2	L1 and combust$3 with oxygen same catalyst	15
☐	L1	(hydrocarbon feedstock or natural gas or methane) and cataly$2 near4 steam same heat exchange reform$3	28

END OF SEARCH HISTORY

Hit List

First Hit | Clear | Generate Collection | Print | Fwd Refs | Bkwd Refs | Generate OACS

Search Results - Record(s) 1 through 5 of 5 returned.

☐ 1. Document ID: US 20070010590 A1

L4: Entry 1 of 5 File: PGPB Jan 11, 2007

PGPUB-DOCUMENT-NUMBER: 20070010590
PGPUB-FILING-TYPE:
DOCUMENT-IDENTIFIER: US 20070010590 A1

TITLE: Production of hydrocarbons by steam reforming and fischer-tropsch reaction

PUBLICATION-DATE: January 11, 2007

INVENTOR-INFORMATION:

NAME	CITY	STATE	COUNTRY
Abbott; Peter Edward James	Cleveland		GB
McKenna; Mark	Stockton on Tees		GB

APPL-NO: 10/555369 [PALM]
DATE FILED: April 21, 2004

FOREIGN-APPL-PRIORITY-DATA:

COUNTRY	APPL-NO	DOC-ID	APPL-DATE
GB	0310106.0	2003GB-0310106.0	May 2, 2003

PCT-DATA:

DATE-FILED	APPL-NO	PUB-NO	PUB-DATE	371-DATE
Apr 21, 2004	PCT/GB04/01677			Jul 20, 2006

INT-CL-PUBLISHED:

TYPE	IPC	DATE	IPC-OLD
IPCP	C07C27/06	20060101	C07C027/06

INT-CL-CURRENT:

TYPE	IPC	DATE
CIPP	C07 C 27/06	20060101

US-CL-PUBLISHED: 518/703
US-CL-CURRENT: 518/703

ABSTRACT:

A process for the production of hydrocarbons is described including; a) subjecting a mixture of a hydrocarbon feedstock and steam to catalytic steam reforming to form a partially reformed gas, b) subjecting the partially reformed gas to partial combustion with an oxygen-containing gas and bringing the resultant partially combusted gas towards equilibrium over a steam reforming catalyst to form a reformed gas mixture, c) cooling the reformed gas mixture to below the dew point of the steam therein to condense water and separating condensed water to give a de-watered synthesis gas, d) synthesising hydrocarbons from side de-watered synthesis gas by the Fischer-Tropsch reaction and e) separating the hydrocarbons from co-produced water, characterised in that at least part of said co-produced water is fed to a saturator wherein it is contacted with hydrocarbon feedstock to provide at least part of the mixture of hydrocarbon feedstock and steam subjected to steam reforming.

☐ 2. Document ID: US 20060135629 A1

L4: Entry 2 of 5 File: PGPB Jun 22, 2006

PGPUB-DOCUMENT-NUMBER: 20060135629
PGPUB-FILING-TYPE:
DOCUMENT-IDENTIFIER: US 20060135629 A1

TITLE: Production of hydrocarbons

PUBLICATION-DATE: June 22, 2006

INVENTOR-INFORMATION:

NAME	CITY	STATE	COUNTRY
Abbott; Peter Edward James	Cleveland		GB
Fowles; Martin	North Yorkshire		GB

APPL-NO: 10/534239 [PALM]
DATE FILED: October 23, 2003

FOREIGN-APPL-PRIORITY-DATA:

COUNTRY	APPL-NO	DOC-ID	APPL-DATE
GB	0225961.2	2002GB-0225961.2	November 7, 2002

PCT-DATA:

DATE-FILED	APPL-NO	PUB-NO	PUB-DATE	371-DATE
Oct 23, 2003	PCT/GB03/04622			Nov 8, 2005

INT-CL-PUBLISHED:

TYPE	IPC	DATE	IPC-OLD
IPCP	C07C27/06	20060101	C07C027/06

INT-CL-CURRENT:

TYPE	IPC	DATE
CIPP	C07 C 27/06	20060101

US-CL-PUBLISHED: 518/702
US-CL-CURRENT: 518/702

ABSTRACT:

A process for production of hydrocarbons including a) reforming a divided hydrocarbon feedstock stream, mixing the first stream with steam, passing the mixture over a catalyst disposed in heated heat exchange reformer tubes to form a primary reformed gas, forming a secondary reformer feed stream including the primary reformed gas and the second hydrocarbon stream, partially combusting the secondary reformer feed stream and bringing the partially combusted gas towards equilibrium over a secondary catalyst, and producing a partially cooled reformed gas, b) further cooling the partially cooled reformed gas below the dew point of steam therein to condense water and separating condensed water to give a de-watered synthesis gas, c) synthesising hydrocarbons from the de-watered synthesis gas by the Fischer-Tropsch reaction and separating some of the synthesised hydrocarbons into a tail gas, and d) incorporating part of the tail gas into the secondary reformer feed stream before partial combustion thereof.

☐ 3. Document ID: US 20020006968 A1

L4: Entry 3 of 5 File: PGPB Jan 17, 2002

PGPUB-DOCUMENT-NUMBER: 20020006968
PGPUB-FILING-TYPE: new
DOCUMENT-IDENTIFIER: US 20020006968 A1

TITLE: Steam reforming

PUBLICATION-DATE: January 17, 2002

INVENTOR-INFORMATION:

NAME	CITY	STATE	COUNTRY
Abbott, Peter Edward James	Eaglescliffe		GB

APPL-NO: 09/781312 [PALM]
DATE FILED: February 13, 2001

RELATED-US-APPL-DATA:
child 09781312 A1 20010213
parent continuation-of PCT/GB99/02286 19990715 US UNKNOWN

FOREIGN-APPL-PRIORITY-DATA:

COUNTRY	APPL-NO	DOC-ID	APPL-DATE
GB	9817526.8	1998GB-9817526.8	August 13, 1998

INT-CL-PUBLISHED: [07] C07C 27/06

INT-CL-CURRENT:

TYPE	IPC	DATE
CIPS	C01 B 3/00	20060101
CIPS	C10 G 2/00	20060101
CIPS	B01 J 19/00	20060101
CIPS	B01 J 8/02	20060101
CIPS	B01 J 8/04	20060101
CIPS	B01 J 8/06	20060101
CIPS	C01 B 3/38	20060101

US-CL-PUBLISHED: 518/704
US-CL-CURRENT: 518/704

REPRESENTATIVE-FIGURES: NONE

ABSTRACT:

Production of synthesis gas for use for synthesising carbon-containing compounds, typically having a hydrogen to carbon monoxide molar ratio of about 2 and a low carbon dioxide content, by primary reforming a gaseous mixture containing hydrocarbons, 0.6 to 2 moles of steam per gram atom of hydrocarbon and 0.2 to 0.6 moles of recycled carbon dioxide per gram atom of hydrocarbon, in a heat exchange reformer and then secondary reforming the resultant primary reformed gas, heating the heat exchange reformer with the resultant secondary reformed gas; cooling and condensing steam from the secondary reformed gas to give a de-watered gas stream having a carbon dioxide content below 20% by volume. The recycled carbon dioxide is recovered from the de-watered gas stream, before or after use thereof for the synthesis reaction.

☐ 4. Document ID: US 7097925 B2

L4: Entry 4 of 5 File: USPT Aug 29, 2006

US-PAT-NO: 7097925
DOCUMENT-IDENTIFIER: US 7097925 B2

TITLE: High temperature fuel cell power plant

DATE-ISSUED: August 29, 2006

PRIOR-PUBLICATION:

DOC-ID	DATE
US 20030143448 A1	July 31, 2003

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Keefer; Bowie G.	Galiano Island			CA

ASSIGNEE-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY	TYPE CODE
QuestAir Technologies Inc.	Burnaby			CA	03

APPL-NO: 10/352361 [PALM]
DATE FILED: January 27, 2003

RELATED-US-APPL-DATA:
continuation-in-part parent-doc US 10039940 00 20011026 PENDING child-doc US 10352361
us-provisional-application US 60351798 00 20020125
us-provisional-application US 60323169 00 20010917

FOREIGN-APPL-PRIORITY-DATA:

COUNTRY	APPL-NO	APPL-DATE
CA	2325072	October 30, 2000

INT-CL-ISSUED:

TYPE	IPC	DATE	IPC-OLD
IPCP	H10M8/12	20060101	H10M008/12
IPCS	H01M8/24	20060101	H01M008/24

INT-CL-CURRENT:

TYPE	IPC	DATE
CIPP	H01 M 8/12	20060101
CIPS	H01 M 8/24	20060101

US-CL-ISSUED: 429/9; 429/30, 429/34
US-CL-CURRENT: 429/9; 429/30, 429/34

FIELD-OF-CLASSIFICATION-SEARCH: 429/13, 429/17, 429/19, 429/20, 429/30, 429/31, 429/34, 429/9
See application file for complete search history.

PRIOR-ART-DISCLOSED:

U.S. PATENT DOCUMENTS

PAT-NO	ISSUE-DATE	PATENTEE-NAME	US-CL
3094569	June 1963	Thomas	
3204388	September 1965	Asker	
3430418	March 1969	Wagner	
3513631	May 1970	Siebert et al.	
3564816	February 1971	Batta	
3594984	July 1971	Toyama et al.	
3847672	November 1974	Trocciola et al.	
3865924	February 1975	Gidaspow et al.	
4019879	April 1977	Rabo et al.	
4144037	March 1979	Armond et al.	
4153434	May 1979	Settlemyer	

4200682	April 1980	Sederquist
4272265	June 1981	Snyder
4322394	March 1982	Mezey et al.
4354859	October 1982	Keller et al.
4406675	September 1983	Dangieri et al.
4452612	June 1984	Mattia
4530705	July 1985	Firey
4532192	July 1985	Baker et al.
4553981	November 1985	Fuderer
4555453	November 1985	Appleby
4578214	March 1986	Jungerhans
4587114	May 1986	Hirai et al.
4595642	June 1986	Nakanishi et al.
4696682	September 1987	Hirai et al.
4702903	October 1987	Keefer
4726816	February 1988	Fuderer
4743276	May 1988	Nishida et al.
4758253	July 1988	Davidson et al.
4759997	July 1988	Ohyauchi et al.
4781735	November 1988	Tagawa et al.
4783433	November 1988	Tajima et al.
4790858	December 1988	Sircar
4801308	January 1989	Keefer
4816121	March 1989	Keefer
4914076	April 1990	Tsuji et al.
4917711	April 1990	Xie et al.
4963339	October 1990	Krishnamurthy et al.
4968329	November 1990	Keefer
4969935	November 1990	Hay
4988580	January 1991	Ohsaki et al.
4994331	February 1991	Cohen
5068159	November 1991	Kinoshita
5079103	January 1992	Schramm
5082473	January 1992	Keefer
5096469	March 1992	Keefer
5096470	March 1992	Krishnamurthy
5126310	June 1992	Golden et al.
5133784	July 1992	Boudet et al.
5147735	September 1992	Ippommatsu et al.
5175061	December 1992	Hildebrandt et al.
5227598	July 1993	Woodmansee et al.
5245110	September 1993	Van Dijk et al.
5246676	September 1993	Hay
5248325	September 1993	Kagimoto et al.
5256172	October 1993	Keefer
5256174	October 1993	Kai et al.
5258571	November 1993	Golden et al.

5271916	December 1993	Vanderborgh et al.	
5282886	February 1994	Kobayashi et al.	
5306575	April 1994	Camara et al.	429/17 X
5328503	July 1994	Kumar et al.	
5360679	November 1994	Buswell et al.	
5366818	November 1994	Wilkinson et al.	
5393326	February 1995	Engler et al.	
5411578	May 1995	Watson et al.	
5415748	May 1995	Emiliani et al.	
5429665	July 1995	Botich	
5431716	July 1995	Ebbeson	
5434016	July 1995	Benz et al.	
5441559	August 1995	Petit et al.	
5487775	January 1996	LaCava et al.	
5509956	April 1996	Opperman et al.	
5523326	June 1996	Dandekar et al.	
5529763	June 1996	Peng et al.	
5529970	June 1996	Peng	
5531809	July 1996	Golden et al.	
5543238	August 1996	Strasser	
5593478	January 1997	Hill et al.	
5604047	February 1997	Bellows et al.	
5632807	May 1997	Tomita et al.	
5645950	July 1997	Benz et al.	
5646305	July 1997	Wagner et al.	
5656067	August 1997	Watson et al.	
5658370	August 1997	Vigor et al.	
5711926	January 1998	Knaebel	
5714276	February 1998	Okamoto	
5766311	June 1998	Ackley et al.	
5811201	September 1998	Skowronski	
5827358	October 1998	Kulish et al.	
5876486	March 1999	Steinwandel et al.	
5877600	March 1999	Sonntag	429/23 X
5891217	April 1999	Lemcoff et al.	
5900329	May 1999	Reiter et al.	
5917136	June 1999	Gaffney et al.	
5925322	July 1999	Werth	
5955039	September 1999	Dowdy	
5958109	September 1999	Fuderer	
5968680	October 1999	Wolfe et al.	
5980857	November 1999	Kapoor et al.	
5981096	November 1999	Hornberg et al.	
5998056	December 1999	Divisek et al.	
6022399	February 2000	Ertl et al.	
6045933	April 2000	Okamoto	
6051050	April 2000	Keefer et al.	

6056804	May 2000	Keefer et al.	
6060032	May 2000	Hable et al.	
6063161	May 2000	Keefer et al.	
6077620	June 2000	Pettit	
6090312	July 2000	Ziaka et al.	
6143057	November 2000	Bulow et al.	
6162558	December 2000	Borup et al.	
6176897	January 2001	Keefer	
6190623	February 2001	Sanger et al.	
6190791	February 2001	Hornburg	
6200365	March 2001	Eimer et al.	
6210822	April 2001	Abersfelder et al.	
6231644	May 2001	Jain et al.	
6255010	July 2001	George et al.	
6280865	August 2001	Eisman et al.	429/17
6283723	September 2001	Milburn et al.	
6293998	September 2001	Dolan et al.	
6296823	October 2001	Ertl et al.	
6312843	November 2001	Kimbara et al.	
6358300	March 2002	Fornof et al.	
6398853	June 2002	Keefer et al.	
6406523	June 2002	Connor et al.	
6428915	August 2002	Ban et al.	
6492048	December 2002	Draper et al.	429/30
6607854	August 2003	Rehg et al.	429/17 X
6667128	December 2003	Edlund	
6692545	February 2004	Gittleman et al.	
2001/0047824	December 2001	Hill et al.	
2002/0004157	January 2002	Keefer et al.	
2002/0098394	July 2002	Keefer et al.	
2002/0104518	August 2002	Keefer et al.	
2002/0110503	August 2002	Gittleman et al.	
2002/0110504	August 2002	Gittleman et al.	
2002/0112479	August 2002	Keefer et al.	
2002/0127442	September 2002	Connor et al.	
2002/0142198	October 2002	Towler et al.	
2002/0142208	October 2002	Keefer et al.	
2003/0143448	July 2003	Keefer et al.	
2003/0157390	August 2003	Keefer et al.	
2004/0005492	January 2004	Keefer et al.	

FOREIGN PATENT DOCUMENTS

FOREIGN-PAT-NO	PUBN-DATE	COUNTRY	CLASS
1256038	June 1989	CA	
2016045	August 1994	CA	

2109055	February 1999	CA
2087972	January 2000	CA
2087973	January 2001	CA
3913 581	November 1990	DE
0 341 189	August 1989	EP
0 345 908	December 1989	EP
0 143 537	March 1990	EP
0 143 537	March 1990	EP
0 681 860	July 1996	EP
0 691 701	October 1996	EP
0 737 648	October 1996	EP
0 750 361	December 1996	EP
0 751 045	January 1997	EP
0 853 967	July 1998	EP
1 095 689	October 1999	EP
1 070 531	January 2001	EP
1 172 772	January 2002	EP
2 042 365	September 1980	GB
59075574	April 1984	JP
62-274561	November 1987	JP
62 274561	November 1987	JP
62 278770	December 1987	JP
63 166137	July 1988	JP
63 228572	September 1988	JP
04 206161	July 1992	JP
05 166528	July 1993	JP
07094200	July 1995	JP
80 45526	February 1996	JP
8045526	February 1996	JP
10 027621	January 1998	JP
10 325360	December 1998	JP
10325360	December 1998	JP
11214021	August 1999	JP
WO 94/04249	August 1992	WO
WO 96/13871	May 1996	WO
WO 98/29182	September 1998	WO
WO 99/01202	January 1999	WO
WO 99/19249	April 1999	WO
WO 99/28013	June 1999	WO
WO 99/46032	September 1999	WO
WO 00/16425	March 2000	WO
WO 00/16880	March 2000	WO
WO 00/76630	December 2000	WO
WO 01/47050	June 2001	WO
WO 02/24309	March 2002	WO
WO 02/35623	May 2002	WO
WO 02/37590	May 2002	WO

WO 02/45821	June 2002	WO
WO 02/47797	June 2002	WO
WO 02/56400	July 2002	WO

OTHER PUBLICATIONS

Chatsiriwech et al., "Enhancement of Catalytic Reaction by Pressure Swing Adsorption," Catalysis Today 20, Elsevier Science, pp. 351-366 (1994), month unknown. cited by other
Hufton et al., "Sorption Enhanced Reaction Process for Hydrogen Production," AIChE Journal, vol. 45 No. 2, pp. 248-256 (Feb. 1999). cited by other
Carvill et al., AIChE J. 42(10):2765-2772, 1996. cited by other
Ding et al., Chemical Engineering Science 55:3461-3474, 2000. cited by oth- er
Ding et al., Chemical Engineering Science 55:3929-3940, 2000. cited by oth- er
Iyuke et al., Chemical Engineering Science 55:4745-4755, 2000. cited by other
International Search Report from International Application No. PCT/CA99/00823. cited by other
International Search Report from International Application No. PCT/CA02/00368. cited by other

ART-UNIT: 1745

PRIMARY-EXAMINER: Kalafut; Stephen J.

ATTY-AGENT-FIRM: Klarquist Sparkman, LLP

ABSTRACT:

Disclosed is a high temperature fuel cell power generation system that includes a high temperature fuel cell having an anode inlet and exhaust, and a cathode inlet and exhaust. The system also includes a gas separation means operable to recover hydrogen gas from the anode exhaust and to provide at least a portion of such hydrogen gas for recycle to the anode inlet. The system further includes energy recovery means operable to recover energy from the fuel cell exhaust gases and to provide at least a portion of such recovered energy to drive mechanical loads associated with the operation of the gas separation means, wherein a portion of the recovered hydrogen gas is provided for export from the generation system as hydrogen fuel.

30 Claims, 17 Drawing figures

☐ 5. Document ID: US 6525104 B2

L4: Entry 5 of 5 File: USPT Feb 25, 2003

US-PAT-NO: 6525104
DOCUMENT-IDENTIFIER: US 6525104 B2
**** See image for Certificate of Correction ****

TITLE: Steam reforming

DATE-ISSUED: February 25, 2003

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Abbott; Peter Edward James	Eaglescliffe			GB

ASSIGNEE-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY	TYPE CODE
Johnson Matthey PLC				GB	03

APPL-NO: 09/781312 [PALM]
DATE FILED: February 13, 2001

PARENT-CASE:
This application is a continuation of PCT/GB99/02286 filed Jul. 15, 1999.

FOREIGN-APPL-PRIORITY-DATA:

COUNTRY	APPL-NO	APPL-DATE
GB	9817526	August 13, 1998

INT-CL-ISSUED: [07] C07C 27/06

INT-CL-CURRENT:

TYPE	IPC	DATE
CIPS	B01 J 19/00	20060101
CIPS	C10 G 2/00	20060101
CIPS	B01 J 8/04	20060101
CIPS	B01 J 8/02	20060101
CIPS	B01 J 8/06	20060101
CIPS	C01 B 3/38	20060101
CIPS	C01 B 3/00	20060101

US-CL-ISSUED: 518/704; 252/373
US-CL-CURRENT: 518/704; 252/373

FIELD-OF-CLASSIFICATION-SEARCH: 252/373, 518/704
See application file for complete search history.

PRIOR-ART-DISCLOSED:

U.S. PATENT DOCUMENTS

PAT-NO	ISSUE-DATE	PATENTEE-NAME	US-CL
2579843	December 1951	Mader	
4479925	October 1984	Shires	
4822521	April 1989	Fuderer	252/373
4824658	April 1989	Karafian	
4910228	March 1990	Lywood	
5300275	April 1994	Lywood	252/373

5855815 January 1999 Park et al. 252/373

FOREIGN PATENT DOCUMENTS

FOREIGN-PAT-NO	PUBN-DATE	COUNTRY	CLASS
0342610	November 1989	EP	
2179366	August 1985	GB	

ART-UNIT: 1754

PRIMARY-EXAMINER: Langel; Wayne A.

ATTY-AGENT-FIRM: Pillsbury Winthrop LLP

ABSTRACT:

Production of synthesis gas for use for synthesising carbon-containing compounds, typically having a hydrogen to carbon monoxide molar ratio of about 2 and a low carbon dioxide content, by primary reforming a gaseous mixture containing hydrocarbons, 0.6 to 2 moles of steam per gram atom of hydrocarbon and 0.2 to 0.6 moles of recycled carbon dioxide per gram atom of hydrocarbon, in a heat exchange reformer and then secondary reforming the resultant primary reformed gas, heating the heat exchange reformer with the resultant secondary reformed gas; cooling and condensing steam from the secondary reformed gas to give a de-watered gas stream having a carbon dioxide content below 20% by volume. The recycled carbon dioxide is recovered from the de-watered gas stream, before or after use thereof for the synthesis reaction.

10 Claims, 3 Drawing figures

Term	Documents
CARBON	1699737
CARBONS	114677
DIOXIDE	595979
DIOXIDES	8186
SEPARAT$3	0
SEPARAT	25374
SEPARATA	450
SEPARATAA	2
SEPARATAB	1

SEPARATABE	2
SEPARATABL	2
(L2 AND SEPARAT$3 NEAR4 CARBON DIOXIDE).PGPB,USPT,USOC,EPAB,JPAB,DWPI.	5

There are more results than shown above. Click here to view the entire set.

Display Format: - Change Format

Previous Page Next Page Go to Doc#